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SB AMSAT @ WW $ANS-001.01
HR AMSAT NEWS SERVICE BULLETIN 001.01 FROM AMSAT HQ
SILVER SPRING, MD January 1, 1994
TO ALL RADIO AMATEURS BT
BID: $ANS-001.01

A number of messages have recently been posted to the AMSAT BBS concerning the schedules for the various satellites and how they are arrived at. In the case of OSCAR-13, the schedule is determined by the AO-13 Command Team consisting of James Miller G3RUH, Peter Guelzow DB2OS and Graham Ratcliff VK5AGR. As to how these volunteers determine the schedule, a very fine set of comments was posted by Paul Beckmann WA0RSE Internet address wa0rse@amsat.org. The AMSAT News Service thanks Paul for his well-put comments and has taken the liberty of extracting them for this bulletin.

Paul begins by asking himself: What determines the mode schedule for a satellite? He says thae he found an answer in the very clearly written piece in the 1993 Space Symposium Proceedings by, you guessed it, James, G3RUH.

In his attempt to put the article by James in terms that may not be obvious to new to satellites as well as many not so new "bird-watchers", Paul offers a list of some of the important considerations:

1. All modern satellites are battery-powered with solar cell recharging systems. In order to work, the batteries must stay charged.

2. Most satellites do not have solar cells covering their entire surface. This means the attitude of the satellite with relation to the sun must be managed to keep the batteries charged.

3. The antennas are fixed to the satellite, not steerable, and necessarily "go along for the ride" when accomplishing Item 2.)

4. Each mode involves a receiver, a transmitter, and a pair of antennas. The receivers vary in sensitivity, the transmitters in power, and the antennas in gain and beamwidth.

5. Because of Item 3, the characteristics of item 4 allow transponder operation only in particular modes, when the distances and spacecraft attitudes are within certain limits. For example, a narrowbeam antenna pointing away from the Earth will not support communications. If a particular mode requires the use of that antenna, it would not do any good to place the satellite in that mode, no matter how badly it was desired. To change the attitude of the spacecraft to point the antenna at the Earth could very well compromise solar cell illumination, hence battery charge, hence spacecraft operation - and possibly even its life expectancy.

6. Because some modes draw more power than others, the battery power must be budgeted. This also constrains how long the satellite can operate in any particular mode.

Paul admits to possibly missing some other major points, but he believes that these demonstrate to him, at least, that the mode schedule on AO-13, or any other bird, is not a self-serving decision made by some "elite superclass" who treat the bird as a "toy", but are considered decisions, constrained by the physics of the orbit, solar cells, batteries, equipment aboard, antennas, etc., designed to offer the best long-term schedule of transponder operation and to further the state-of-the-art for the next birds' designs.

WA0RSE strongly suggests reading the article by James in the Proceedings. He says that he was amazed at the number of specialized programs that had been written, complete with graphical output, to aid in the decision-making process to keep the AO-13 satellite operational. He expressed his opinion that James, and others like him, should be thanked for bringing clear explanations like these to the rest of us and for fostering experimentation in modes that have proven to provide better two-way satellite communications for our fellow hams across the globe.

Paul sums up his message by saying that we need everyone interested in AMSAT, with their opinions, tempers, passions, talents, and good humor. He also wishes all a Happy New Year. Peace on Earth. Good will toward all.

Information on ordering a copy of the Space Symposium Proceedings, which contains James Miller's article can be found on page 12 of the Nov/Dec AMSAT Journal.

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SB ALL @ AMSAT $ANS-001.02
HR AMSAT NEWS SERVICE BULLETIN 001.02 FROM AMSAT HQ
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TO ALL RADIO AMATEURS BT
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RV3DR, QSL manager for MIR contacts, advises that on December 24, 1993, December 31, 1993 and January 6, 1994 the MIR space station will be transmitting special digitized voice messages on its normal frequency of 145.55 MHz. The message repeats every tow minutes. Sergey says that the developer of this equipment is DL2MDE.

ANS thanks RV3DR for the information that went into this bulletin and James Mollica N2NRD for relaying it to us.

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SB AMSAT @ WW $ANS-001.03
ANS001.03 Experimenter's Day Returns to AO-16
HR AMSAT NEWS SERVICE BULLETIN 001.03 FROM AMSAT HQ
SILVER SPRING,MD January 1, 1994
TO ALL RADIO AMATEURS BT
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Experimenter's Day Returns to AO-16

AO-16 Command Team Leader, Russ Platt, WJ9F, announces the resumption of Experimenter's Day on Pacsat. In the past Experimenter's Days on Pacsat the procedure was to change to the Pacsat Raised Cosine PSK transmitter on 437.050 Mhz and activate the S-Band transmitter on 2400.143 Mhz. With the decline of the carrier suppression on the "Straight" PSK transmitter (437.025 Mhz) the RC PSK transmitter has become the primary downlink for some time. In the upcoming schedule of Experimenter's Days the power output will be reduced on the RC PSK transmitter and the S-Band transmitter will

be turned on. The power output from the S-Band transmitter is not variable so power management is controlled by varying the output of the RC PSK transmitter.

Experimenter's Days managed by AMSAT-NA have been held on UTC Wednesdays since the days of AMSAT-OSCARS 6 and 7 when Wednesday was " battery recharge day." (Incidentally, this is also the reason that the continental U.S. 75 meter nets were originally scheduled for Tuesday evenings.)

Future Experimenter's Days are scheduled for:

05 January 0411 UTC through 06 January 0340 UTC
26 January 0400 UTC through 27 January 0330 UTC

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SB AMSAT @ WW $ANS-001.04
ans001.04 Recommended Operation Procedure to Reduce AO-16 Uplink Contention
HR AMSAT NEWS SERVICE BULLETIN 001.04 FROM AMSAT HQ
SILVER SPRING, MD January 1, 1994
TO ALL RADIO AMATEURS BT
BID: $ANS-001.04

Recommended Operation Procedure to Reduce AO-16 Uplink Contention

1993 has brought many new satellites and many new satellite users. I feel it would be good to dust off an old bulletin from 1991 to help refresh the "old-timers" procedures and to aquaint new users to the recommended uplink frequency usage.
The AO-16 Command Team recommends that users of the AO-16 PBBS system use only uplink channel D (145.960 Mhz) for download and directory requests leaving channels A, B, and C (145.900, 145.920, and 145.940 Mhz) for file uploads and digi users.
Stations uploading files should stay off of the download/directory/fill request channel D as their longer uplink packets will collide with the shorter request packets. Stations doing downloads and directories should stay off channels A, B, and C since their frequent but short requests will collide with longer uplink attempts seriously degrading uplink performance.
Another benefit of using this procedure, while most of the uplink activity to AO-16 will be on channel D (145.960) this frequency is high enough in the passband of AO-13 that QRMing our fellow operators will be kept to a minumum when Pacsat crosses beneath AO-13's path.

Recommended AO-16 operating practice in summary:

Downlinks: 437.050 (also 2400.143 on experimenter's day.)
Uplinks: 145.900 A uploads
             145.920 B uploads
             145.940 C uploads
             145.960 D downloads, fills and directory requests

 WJ9F / AO-16 Command Team Leader
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